DETAILED ACTION

Drawings

1. The drawings were received on 10/14/2011. These drawings are accepted.

Claim Objections

1. Claim 13 and 19 are objected to because it recites "two independent wheel base measurements determined for each vehicle" without tying this determination to a particular component of the system for verifying the speed of a vehicle. Appropriate correction is required.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 1, 2, 6, 7, 11, 12, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen et al. (US 6,075,466) in view of Smith et al. (US 3,872,283) and Kauer et al. (US 5,020,236)**.

3. Regarding claim 1, Cohen discloses sensing a presence of the vehicle. The automatic traffic monitoring system includes a passive road sensor that accurately 22detects the movement of a moving vehicle (Abstract).

Furthermore, Cohen discloses recording an image of the vehicle to enable the vehicle to be identified. The traffic monitoring system 50 includes a video camera 54 (Col. 8, Lines 19-20). If the vehicle speed or the distance between two vehicles

exceeds a threshold, then an image obtained from video camera 54 is analyzed to extract the license plate number of the vehicle (Col. 9, Lines 1-10).

Moreover, Cohen discloses triggering the sensors to each emit a signal. When a vehicle drives over sensors 11 and 12, a signal is recorded by processor unit 52 (Col. 8, Lines 42-46).

Additionally, Cohen discloses receiving the signals emitted by the sensors. Processor unit 52 uses the signals from sensors 11 and 12 to determine the impact times of the wheels (Col. 8, Lines 44-46).

Also, Cohen discloses determining the speed of the vehicle. The processor unit determines the vehicles velocity by dividing the known distance between sensors 11 and 12 by the time difference t2-t1 (Col. 8, Lines 47-50).

Lastly, Cohen discloses identifying the vehicle from the recorded image of the vehicle. The image of the front or rear of the vehicle is then analyzed using a suitable algorithm aimed at extracting the license plate registration number (Col. 9, Lines 8-10).

Cohen does not explicitly disclose the steps of (f) determining a wheel base measurement for the vehicle, (h) comparing the determined wheel base measurement to a validated wheel base measurement of the vehicle being sensed, and (i) identifying a discrepancy between the determined wheel base measurement and the validated wheel base measurement of the vehicle being sensed as potential errors in the speed of the vehicle determined by step (e).

However, Smith discloses steps (f) and (h) as a method to passively identify an aircraft without requiring information actively transmitted from the aircraft and in an

automatic manner not requiring manual input from an operator (Col. 1, Lines 56-60). Although Smith teaches steps (f) and (h) with respect to an airplane, Smith discloses that the identification system disclosed in Smith is operable with automobiles and other vehicles having non-tricycle wheel arrangements (Col. 3, Lines 53-59). Specifically, Smith discloses that a footprint of a vehicle is determined by generating a unique relation of signals that are generated as the vehicle travels along a path which includes sensors positioned at signal generating locations, with at least one such sensor providing a signal each time a vehicle wheel passes the sensor (Col. 2, Lines 42-50). The time relation of the signals generated is used to determine the velocity of the vehicle and the dimensional locations of the wheels (wheelbase) (Col. 2, Lines 55-58). The dimensions determined from the measured signal velocity time relation produced by the wheels of the vehicle (determined wheel base measurement) can be compared with predetermined dimension signals (validated wheel base measurement) produced by the footprints of various known vehicle types, with a matching or best-fit comparison providing an identification of the vehicle type which produces the measured dimension signals (Col. 2, Lines 58-65).

It would have been obvious to a person having ordinary skill in the art (PHOSITA) to modify the method of verifying the speed of a vehicle as disclosed in Cohen, to (f) determine a wheel base measurement for the vehicle and (h) compare the determined wheel base measurement to a validated wheel base measurement of the vehicle being sensed, as taught by Smith, to passively identify a vehicle without requiring the vehicle or operator of the vehicle to actively transmit any information.

Cohen in view of Smith do not explicitly disclose (i) identifying a discrepancy between the determined wheel base measurement and the validated wheel base measurement of the vehicle being sensed as potential errors in the speed of the vehicle determined by step (e).

However, Kauer teaches that it is possible to determine the interaxle distance of a moving vehicle while its speed is being measured for the purposes of determining whether the interaxle distance for a vehicle is appropriate for a particular bridge (Col. 1, Lines 8-18). Kauer further discloses that indirectly determining the interaxle distance (wheelbase measurement) of a vehicle by using the time intervals as the front and rear axle of a vehicle pass over sensors is imprecise (Col. 1, LInes 18-30). Thus, this measurement is subject to error.

In light of Kauer, a PHOSITA would have come to the conclusion that a discrepancy between the determined wheel base measurement of Cohen in view of Smith and the validated wheel base measurement of Cohen in view of Smith of the vehicle being sensed as potential errors in the speed of the vehicle determined by Cohen because indirectly determining the interaxle distance from the speed of a moving vehicle is imprecise. If the derived wheelbase from the vehicle speed is imprecise and does not match the expected wheel base, then a PHOSITA would have come to the conclusion that there must be a certain degree of error with the speed determination because the derived wheelbase should be equal to the expected wheel base (validated wheelbase). If there wasn't an error with the speed determination, then the determined wheelbase derived from the vehicle speed determination should be equal to the

expected (validated) wheel base measurement because the derived wheelbase measurement is directly based on data that determines the speed of a moving vehicle.

It would have been obvious to a PHOSITA at the time of the Applicant's invention, to modify the method for verifying the speed of a vehicle as disclosed in Cohen in view of Smith, to identify a discrepancy between the determined wheel base measurement and the validated wheel base measurement of the vehicle being sensed as potential errors in the speed of the vehicle determined above, based on the teachings of Kauer, because indirectly determining the wheel base from the speed of a moving car is imprecise and thus a discrepancy between a value derived from the speed of the moving car and the expected value of the wheel base would indicate that something is wrong with the speed measurement.

4. The method of claim 6 has been discussed in the rejection of claim 1,except for:

(b) recording an image of the vehicle to enable the vehicle to be classified according to type;

(j) providing a database containing data relating to various vehicle types associated with vehicle specifications including a validated wheel base measurement for each vehicle type, wherein the wheel base measurement determined by the method is compared to the validated wheel base measurement stored in the database.

Cohen discloses recording an image of the vehicle to enable the vehicle to be classified. The traffic monitoring system 50 includes a video camera 54 (Col. 8, Lines 19-20). If the vehicle speed or the distance between two vehicles exceeds a threshold,

then an image obtained from video camera 54 is analyzed to extract the license plate number of the vehicle (Col. 9, Lines 1-10).

However, Cohen does not explicitly disclose (b) recording an image of the vehicle to enables the vehicle to be classified *according to type*.

A PHOSITA would have come to the conclusion that the type of vehicle, such as a two axle or three axle vehicle could be determined from the image obtained from video camera 54. This would provide the advantageous benefit of allowing speed versus vehicle type analysis to be performed, which would allow traffic patterns to be studied.

It would have been obvious to a PHOSITA to record an image of the vehicle to enable the vehicle to be classified according to type based on the teachings of Cohen to allow traffic patterns to be studied.

Cohen does not explicitly disclose (j) providing a database containing data relating to various vehicle types associated with vehicle specifications including a validated wheel base measurement for each vehicle type, wherein the wheel base measurement determined by the method is compared to the validated wheel base measurement stored in the database.

However, Smith discloses step (j) as a method to passively identify an aircraft without requiring information actively transmitted from the aircraft and in an automatic manner not requiring manual input from an operator (Col. 1, Lines 56-60). Although Smith teaches steps (f) and (h) with respect to an airplane, Smith discloses that the identification system disclosed in Smith is operable with automobiles and other vehicles

having non-tricycle wheel arrangements (Col. 3, Lines 53-59). Specifically, Smith discloses a stored dimension data 43 that stores wheelbase information and is inputted into a comparator 44 that compares the stored information with the determined wheelbase for the purposes of outputting a vehicle type (Figure 2). The determined wheelbase measurement is compared with predetermined signals of various known vehicle types (Col. 2, Lines 58-65).

It would have been obvious to a PHOSITA at the time of the Applicant's invention, to modify the method of verifying the speed of a vehicle as disclosed in Cohen, to (j) providing a database containing data relating to various vehicle types associated with vehicle specifications including a validated wheel base measurement for each vehicle type, wherein the wheel base measurement determined by the method is compared to the validated wheel base measurement stored in the database, as taught by Smith, to passively identify a vehicle without requiring the vehicle or operator of the vehicle to actively transmit any information.

5. Regarding claims 2 and 7, Cohen discloses measuring a first time interval between the front axle triggering a signal in the first sensor and the front axle triggering a signal in the second sensor. When a vehicle travels on road 20 along traffic direction 271, its front wheels first contact sensor 11 and then sensor 12 (Col. 8, Lines 42-44). These contact times are recorded and used to determine the time difference (Col. 8, Lines 47-50).

Cohen also discloses measuring a second time interval between the rear axle triggering a signal in the first sensor and the rear axle triggering a signal in the second

sensor. The system determines the precise times at which the rear wheels pass over sensors 11 and 12 (Col. 8, Lines 50-52).

Additionally, Cohen discloses computing the speed of the front axle relative to the distance separating the first and second sensors and the first time interval. The processor determines the vehicle's velocity by dividing the known distance between sensors 11 and 12 by the time difference t2-t1 (Col. 8, Lines 47-50).

Lastly, Cohen does not explicitly disclose computing the speed of the rear axle relative to the distance separating the first and second sensors and the second time interval.

However, Cohen discloses that the time difference t2-t1 of the rear wheels passing over sensors 11 and 12 are used to calculate the acceleration of the vehicle. A PHOSITA would have come to the conclusion that speed of the vehicle as the rear wheel passes over sensors 11 and 12 may be computed in the same exact way as the front wheels. Any disparity between the time difference of the front wheels and rear wheels would allow a PHOSITA to compute the acceleration of the vehicle.

It would have been obvious to a PHOSITA at the time of the Applicant's invention, to compute the speed of the rear axle relative to the distance separating the first and second sensors and the second time interval to calculate the acceleration of the vehicle.

6. Regarding claim 11, Cohen discloses a camera for recording an image of the vehicle to enable the vehicle to be identified. The traffic monitoring system 50 includes a video camera 54 (Col. 8, Lines 19-20).

Furthermore, Cohen discloses at least two sensors separated by a distance which are triggered to emit a signal by the front and rear axles. When a vehicle drives over sensors 11 and 12, a signal is recorded by processor unit 52 (Col. 8, Lines 42-46).

Moreover, Cohen discloses triggering the sensors to each emit a signal. When a vehicle drives over sensors 11 and 12, a signal is recorded by processor unit 52 (Col. 8, Lines 42-46).

Additionally, Cohen discloses means for receiving the signals emitted by the sensors. Processor unit 52 uses the signals from sensors 11 and 12 to determine the impact times of the wheels (Col. 8, Lines 44-46).

Also, Cohen discloses means for using the signals to determine the speed of the vehicle. The processor unit determines the vehicles velocity by dividing the known distance between sensors 11 and 12 by the time difference t2-t1 (Col. 8, Lines 47-50).

Lastly, Cohen discloses means for identifying the vehicle from the recorded image of the vehicle. The image of the front or rear of the vehicle is then analyzed using a suitable algorithm aimed at extracting the license plate registration number (Col. 9, Lines 8-10).

Cohen does not explicitly disclose (e) means for using the signals to determine a wheel base measurement for the vehicle, (g) means for comparing the wheel base measurement determined by the system to a validated wheel base measurement of the vehicle being sensed, and (h) means for identifying any discrepancy between the determined wheel base measurement and the validated wheel base measurement of

the vehicle being sensed as potential errors in the speed of the vehicle determined by system.

However, Smith discloses the means (e) and (g) in a system that passively identifies an aircraft without requiring information actively transmitted from the aircraft and in an automatic manner not requiring manual input from an operator (Col. 1, Lines 56-60). Although Smith teaches means (e) and (g) with respect to an airplane (Figure 2), Smith discloses that the identification system disclosed in Smith is operable with automobiles and other vehicles having non-tricycle wheel arrangements (Col. 3, Lines 53-59). Specifically, Smith discloses that a footprint of a vehicle is determined by generating a unique relation of signals that are generated as the vehicle travels along a path which includes sensors positioned at signal generating locations, with at least one such sensor providing a signal each time a vehicle wheel passes the sensor (Col. 2, Lines 42-50). The time relation of the signals generated is used to determine the velocity of the vehicle and the dimensional locations of the wheels (wheelbase) (Col. 2, Lines 55-58). The dimensions determined from the measured signal velocity time relation produced by the wheels of the vehicle (determined wheel base measurement) can be compared with predetermined dimension signals (validated wheel base measurement) produced by the footprints of various known vehicle types, with a matching or best-fit comparison providing an identification of the vehicle type which produces the measured dimension signals (Col. 2, Lines 58-65).

It would have been obvious to a PHOSITA to modify the system for verifying the speed of a vehicle as disclosed in Cohen, to include (e) means for using the signals to

determine a wheel base measurement for the vehicle and (h) means for comparing the wheel base measurement determined by the system to a validated wheel base measurement of the vehicle being sensed, as taught by Smith, to passively identify a vehicle without requiring the vehicle or operator of the vehicle to actively transmit any information.

Cohen in view of Smith do not explicitly disclose (h) means for identifying any discrepancy between the determined wheel base measurement and the validated wheel base measurement of the vehicle being sensed as potential errors in the speed of the vehicle determined by the system.

However, Kauer teaches that it is possible to determine the interaxle distance of a moving vehicle while its speed is being measured for the purposes of determining whether the interaxle distance for a vehicle is appropriate for a particular bridge (Col. 1, Lines 8-18). Kauer further discloses that indirectly determining the interaxle distance (wheelbase measurement) of a vehicle by using the time intervals as the front and rear axle of a vehicle pass over sensors is imprecise (Col. 1, LInes 18-30). Thus, this measurement is subject to error.

In light of Kauer, a PHOSITA would have come to the conclusion that any discrepancy between the determined wheel base measurement of Cohen in view of Smith and the validated wheel base measurement of Cohen in view of Smith of the vehicle being sensed as potential errors in the speed of the vehicle determined by Cohen because indirectly determining the interaxle distance from the speed of a moving vehicle is imprecise. If the derived wheelbase from the vehicle speed is imprecise and

does not match the expected wheel base, then a PHOSITA would have come to the conclusion that there must be a certain degree of error with the speed determination because the derived wheelbase should be equal to the expected wheel base (validated wheelbase). If there wasn't an error with the speed determination, then the determined wheelbase derived from the vehicle speed determination should be equal to the expected (validated) wheel base measurement because the derived wheelbase measurement is directly based on data that determines the speed of a moving vehicle.

It would have been obvious to a PHOSITA at the time of the Applicant's invention, to modify the system for verifying the speed of a vehicle as disclosed in Cohen in view of Smith, to include means for identifying a discrepancy between the determined wheel base measurement and the validated wheel base measurement of the vehicle being sensed as potential errors in the speed of the vehicle determined above, based on the teachings of Kauer, because indirectly determining the wheel base from the speed of a moving car is imprecise and thus a discrepancy between a value derived from the speed of the moving car and the expected value of the wheel base would indicate that something is wrong with the speed measurement.

7. The system of claim 17 has been discussed in the rejection of claim 11,except for:

(i) a database containing data relating to various vehicle types associated with vehicle specifications including a validated wheel base measurement for each vehicle type, wherein the wheel base measurement determined by the method is compared to the validated wheel base measurement stored in the database.

Cohen does not explicitly disclose (i) a database containing data relating to various vehicle types associated with vehicle specifications including a validated wheel base measurement for each vehicle type, wherein the wheel base measurement determined by the method is compared to the validated wheel base measurement stored in the database.

However, Smith discloses (i) a database to passively identify an aircraft without requiring information actively transmitted from the aircraft and in an automatic manner not requiring manual input from an operator (Col. 1, Lines 56-60). Although Smith teaches means (e) and (h) with respect to an airplane, Smith discloses that the identification system disclosed in Smith is operable with automobiles and other vehicles having non-tricycle wheel arrangements (Col. 3, Lines 53-59). Specifically, Smith discloses a stored dimension data 43 that stores wheelbase information and is inputted into a comparator 44 that compares the stored information with the determined wheelbase for the purposes of outputting a vehicle type (Figure 2). The determined wheelbase measurement is compared with predetermined signals of various known vehicle types (Col. 2, Lines 58-65).

It would have been obvious to a PHOSITA at the time of the Applicant's invention, to modify the system for verifying the speed of a vehicle as disclosed in Cohen, to include (i) a database containing data relating to various vehicle types associated with vehicle specifications including a validated wheel base measurement for each vehicle type, wherein the wheel base measurement determined by the method is compared to the validated wheel base measurement stored in the database, as

taught by Smith, to passively identify a vehicle without requiring the vehicle or operator of the vehicle to actively transmit any information.

8. Regarding claims 12 and 18, Cohen discloses means for determining a first time interval between the front axle triggering a signal in the first sensor and the front axle triggering a signal in the second sensor. When a vehicle travels on road 20 along traffic direction 271, its front wheels first contact sensor 11 and then sensor 12 (Col. 8, Lines 42-44). These contact times are recorded and used to determine the time difference (Col. 8, Lines 47-50).

Cohen also discloses means for determining a second time interval between the rear axle triggering a signal in the first sensor and the rear axle triggering a signal in the second sensor. The system determines the precise times at which the rear wheels pass over sensors 11 and 12 (Col. 8, Lines 50-52).

Additionally, Cohen discloses means for computing the speed of the front axle relative to the distance separating the first and second sensors and the first time interval. The processor determines the vehicle's velocity by dividing the known distance between sensors 11 and 12 by the time difference t2-t1 (Col. 8, Lines 47-50).

Lastly, Cohen does not explicitly disclose means for computing the speed of the rear axle relative to the distance separating the first and second sensors and the second time interval.

However, Cohen discloses that the time difference t2-t1 of the rear wheels passing over sensors 11 and 12 are used to calculate the acceleration of the vehicle. A PHOSITA would have come to the conclusion that speed of the vehicle as the rear

wheel passes over sensors 11 and 12 may be computed in the same exact way as the front wheels. Any disparity between the time difference of the front wheels and rear wheels would allow a PHOSITA to compute the acceleration of the vehicle.

It would have been obvious to a PHOSITA at the time of the Applicant's invention, to modify the means for computing of Cohen, to compute the speed of the rear axle relative to the distance separating the first and second sensors and the second time interval, based on the teachings of Cohen, to calculate the acceleration of the vehicle.

9. **Claims 3, 8, (13, 14), and (19, 20) are rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen et al. (US 6,075,466) in view of Smith et al. (US 3,872,283) and Kauer et al. (US 5,020,236) as applied to claims 2, 7, 11, 17 above, respectively, and further in view of Barbosa et al. (A Model of Speed Profiles for Traffic Calmed Roads)**.

10. Regarding claims 3 and 8, Cohen implicitly discloses measuring a third time interval between the front axle triggering a signal in the second sensor and the rear axle triggering a signal in the first sensor. The impact time of the front wheel contacting sensor 12 and the impact time of the rear wheel contacting sensor 11 are known (Col. 8, Lines 42-52). While Cohen focuses on the time difference of the front and rear wheels passing over sensors 11 and 12, the time between front axle triggering a signal in the second sensor and the rear axle triggering a signal in the first sensor is measured because the processor unit records all signals from the sensors.

Cohen does not disclose computing a first wheel base measurement for the vehicle relative to the first and third time intervals and the distance and computing a second wheel base measurement for the vehicle relative to the second and third time intervals and the distance.

However, Barbosa discloses computing a first wheel base measurement for the vehicle relative to the first time interval and the distance and computing a second wheel base measurement for the vehicle relative to the second time interval and the distance to determine a speed profile for each individual vehicle being tested (Section 3.3 Speed Profile Calculation, Page 107). Specifically, Barbosa discloses that the length of the wheelbase can be obtained using the difference between passing times of the first and second axles over sensor 1 and sensor 2 (Section 3.3 Speed Profile Calculation, Page 107).

It would have been obvious to a PHOSITA at the time of the Applicant's invention, to modify the method of verifying the speed of a vehicle as disclosed in Cohen, by computing a first and second wheel base measurement relative to a first and second time interval, as disclosed in Barbosa, to determine a speed profile for each individual vehicle being tested.

Cohen in view of Barbosa does not explicitly disclose computing a first wheel base measurement for the vehicle relative to the first *and third* time intervals and the distance and computing a second wheel base measurement for the vehicle relative to the second *and third* time intervals and the distance.

However, the third time interval approximately represents the period of time that the wheel base passes over the sensors. A PHOSITA would be able to calculate an approximate length of the wheelbase using this third time interval through algebraic manipulation. As discussed above in Cohen, the second time interval may be used to determine vehicle acceleration. It follows that because of the potential vehicle acceleration, it is possible that this third time interval alone would not provide an accurate measurement of the wheel base. Thus, a PHOSITA would have come to the conclusion that the wheelbase should be calculated relative to the first and third time intervals as well as the second and third time intervals in order to compute a more precise wheelbase length. This would provide the advantageous benefit of removing the amount of measurement error due to vehicle acceleration.

It would have been obvious to a PHOSITA at the time of the Applicant's invention, to modify the wheel base measurement of Cohen in view of Barbosa, to compute wheel base measurements relative to the first and third time intervals and the distance, as well as the second and third time intervals and the distance, to remove the amount of measurement error due to vehicle acceleration.

11. Regarding claims 13 and 19, Cohen does not explicitly disclose means for performing two independent wheel base measurements for each vehicle.

However, Barbosa discloses means for performing two independent wheel base measurements for each vehicle to determine a speed profile for each individual vehicle being tested (Section 3.3 Speed Profile Calculation, Page 107). Specifically, Barbosa discloses that the length of the wheelbase can be obtained using the difference

between passing times of the first and second axles over sensor 1 and sensor 2 and that four estimates of the length of the wheelbase may be computed (Section 3.3 Speed Profile Calculation, Page 107).

It would have been obvious to a PHOSITA at the time of the Applicant's invention, to modify the system for verifying the speed of a vehicle as disclosed in Cohen, to include means that computes two independent wheel base measurements for each vehicle, as disclosed in Barbosa, to determine a speed profile for each individual vehicle being tested.

12. Regarding claims 14 and 20, Cohen implicitly discloses means for determining a third time interval between the front axle triggering a signal in the second sensor and the rear axle triggering a signal in the first sensor. The impact time of the front wheel contacting sensor 12 and the impact time of the rear wheel contacting sensor 11 are known (Col. 8, Lines 42-52). While Cohen focuses on the time difference of the front and rear wheels passing over sensors 11 and 12, the time between front axle triggering a signal in the second sensor and the rear axle triggering a signal in the first sensor is measured because the processor unit records all signals from the sensors.

Cohen does not disclose means for computing a first wheel base measurement for the vehicle relative to the first and third time intervals and the distance and means for computing a second wheel base measurement for the vehicle relative to the second and third time intervals and the distance.

However, Barbosa discloses means for computing a first wheel base measurement for the vehicle relative to the first time interval and the distance and

means for computing a second wheel base measurement for the vehicle relative to the second time interval and the distance to determine a speed profile for each individual vehicle being tested (Section 3.3 Speed Profile Calculation, Page 107). Specifically, Barbosa discloses that the length of the wheelbase can be obtained using the difference between passing times of the first and second axles over sensor 1 and sensor 2 (Section 3.3 Speed Profile Calculation, Page 107).

It would have been obvious to a PHOSITA at the time of the Applicant's invention, to modify the system for verifying the speed of a vehicle as disclosed in Cohen, by computing a first and second wheel base measurement relative to a first and second time interval, as disclosed in Barbosa, to determine a speed profile for each individual vehicle being tested.

Cohen in view of Barbosa does not explicitly disclose means for computing a first wheel base measurement for the vehicle relative to the first *and third* time intervals and the distance and means for computing a second wheel base measurement for the vehicle relative to the second *and third* time intervals and the distance.

However, the third time interval approximately represents the period of time that the wheel base passes over the sensors. A PHOSITA would be able to calculate an approximate length of the wheelbase using this third time interval through algebraic manipulation. As discussed above in Cohen, the second time interval may be used to determine vehicle acceleration. It follows that because of the potential vehicle acceleration, it is possible that this third time interval alone would not provide an accurate measurement of the wheel base. Thus, a PHOSITA would have come to the

conclusion that the wheelbase should be calculated relative to the first and third time intervals as well as the second and third time intervals in order to compute a more precise wheelbase length. This would provide the advantageous benefit of removing the amount of measurement error due to vehicle acceleration.

It would have been obvious to a PHOSITA at the time of the Applicant's invention, to modify the means for determining the wheel base measurement of Cohen in view of Barbosa, to compute wheel base measurements relative to the first and third time intervals and the distance, as well as the second and third time intervals and the distance, to remove the amount of measurement error due to vehicle acceleration.

13. **Claims 4, 9, 15 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen et al. (US 6,075,466) in view of Smith et al. (US 3,872,283) and Kauer et al. (US 5,020,236) as applied to claims 1, 6, 11, and 17 above, respectively, and further in view of Hutchinson (US 2002/0000921).**

14. Regarding claims 4, 9, 15, and 21 Cohen does not disclose counting or means for counting the signals triggered by the first and second sensors by each vehicle, wherein the number of signals triggered in each sensor is used to determine a number of axles associated with the vehicle.

However, Hutchinson discloses counting and means for counting the signals triggered by the first and second sensors by each vehicle, wherein the number of signals triggered in each sensor is used to determine a number of axles associated with the vehicle for the purposes of studying the rate of flow and individual speed of the vehicle traffic passing along a street (Paragraph [0013]). Specifically, Hutchinson

discloses that two separated parallel tubes must be installed across the lanes of traffic to measure the time interval elapsed by a vehicle passing between the two tubes (Paragraph [0013]). This configuration may be used if the objective of the traffic measurement is to obtain the vehicle count and the direction of travel (Paragraph [0019]). Hutchinson further discloses that a two-axle and three axle vehicle passing over the two tubes will cause four and six pulses to be transmitted, respectively (Paragraph [0013]).

It would have been obvious to a PHOSITA at the time of the Applicant's invention, to modify the vehicle speed verification method of Cohen, to count the signals triggered by the sensors and to associate the signals with the number of axles for the vehicle, as disclosed in Hutchinson, for the purposes of studying the rate of flow and individual speed of the vehicle traffic passing along a street.

Cohen in view of Hutchinson do not explicitly disclose that the number of the axles determined is compared to an actual number of axles in the vehicle being sensed such that any discrepancy between them is indicative of potential errors in the speed of the vehicle determined by the method.

However, a PHOSITA would have come to the conclusion that comparing the sensed number of axles should be compared to the actual number of axles to determine if there is an error the vehicle speed measurement. Such a step is a natural extension of the teachings of Hutchinson because an inaccurate axle count would not provide an accurate traffic study. If the number of axles counted does not equal the actual number of axles of the vehicle, then a PHOSITA would have come to the conclusion that a

discrepancy between the number of axles would be indicative of error in the speed determination because the speed determination is based on when an axle passes over a sensor. If an axle was not sensed by the sensors, then it follows that the speed determination of the vehicle would not be correct.

It would have been obvious to a PHOSITA at the time of the Applicant's invention, to modify the teachings of Cohen in view of Hutchinson, to compare the sensed number of axles to the actual number of axles and any discrepancy between the two is indicative of an error in the speed measurement because such a step is a natural extension of the teachings of Hutchinson since an inaccurate axle count would not provide an accurate traffic study.

15. **Claims 5, 10, 16, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen et al. (US 6,075,466) in view of Smith et al. (US 3,872,283) and Kauer et al. (US 5,020,236) as applied to claims 1, 6, 11, and 17 above, respectively, and further in view of Johnson et al. (US 5,455,768).**

16. Regarding claims 5 and 10, Cohen does not disclose periodically calibrating the system by injecting into the system signals simulating sensor signals for a known vehicle speed and comparing the determined vehicle speed with the known vehicle speed.

However, Johnson teaches the principles of periodically calibrating the system by injecting into the system signals simulating sensor signals for a known vehicle speed and comparing the determined vehicle speed with the known vehicle speed to determine if the system is working properly (Col. 3, Lines 19-21). Specifically, Johnson

discloses that the system is periodically checked to see if the magnetic probe is operational by applying a signal to the probe and monitoring the probe response (Col. 3, Lines 19-22). Johnson further discloses that the calibration can be accomplished by passing one or more vehicles through the sensing area at known speeds and adjusting the speeds determined by the device to match the known speeds (Col. 7, Lines 56-59). Johnson further discloses that the duration of the signal may not be in linear proportion to the speed of the passing vehicle and so it is necessary to pass several vehicles at different speeds and to process the signal obtained in order to obtain an accurate calibration (Col. 7, Lines 59-63). Johnson also discloses that the system applies a signal to conduct a “self-check” if a predetermined period of time has elapsed to determine if the device is operating properly (Col. 8, Lines 59-64).

While Johnson does not explicitly disclose that the signal applied is a known vehicle speed, a voltage induced in the probe is representative of the speed of a vehicle passing over the sensing area (Col. 3, Line 65 - Col 4, Line 25). A PHOSITA would have come to the conclusion that the magnitude of the voltage applied to the probe may be proportional to a voltage corresponding to a known speed. This would provide the advantageous benefit of ensuring that the system is providing accurate measurements because the speed determined by the system as a result of applied signal should not substantially deviate from the expected response of the system. Any substantial deviation, similar to passing one or more vehicles through the sensing area, as described above, would be an indication that the system needs to be recalibrated.

It would have been obvious to a PHOSITA at the time of the Applicant's invention, to periodically calibrate the system by injecting a signal and comparing a known vehicle speed to a determined vehicle speed, based on the teachings of Johnson, to ensure that the system is providing accurate measurements.

17. Regarding claims 16 and 22, Cohen does not disclose means for injecting into the system signals simulating sensor signals for a known vehicle speed and comparing the determined vehicle speed with the known vehicle speed.

However, Johnson discloses means for injecting into the system signals simulating sensor signals to determine if the system is working properly (Col. 3, Lines 19-21). Specifically, Johnson discloses that the system is periodically checked to see if the magnetic probe is operational by applying a signal to the probe and monitoring the probe response (Col. 3, Lines 19-22).

It would have been obvious to a PHOSITA at the time of the Applicant's invention, to modify the system for verifying the speed of a vehicle as disclosed in Cohen, to include means for injecting into the system signals simulating sensor signals, as disclosed in Johnson, to determine if the system is working properly.

Johnson does not explicitly disclose that the means for injecting simulator sensor signals inject signals *for a known vehicle speed and compares the determined vehicle speed with the known vehicle speed to calibrate the system*.

However, Johnson discloses that the calibration can be accomplished by passing one or more vehicles through the sensing area at known speeds and adjusting the speeds determined by the device to match the known speeds (Col. 7, Lines 56-59).

Johnson further discloses that the duration of the signal may not be in linear proportion to the speed of the passing vehicle and so it is necessary to pass several vehicles at different speeds and to process the signal obtained in order to obtain an accurate calibration (Col. 7, Lines 59-63). Johnson also discloses that the system applies a signal to conduct a “self-check” if a predetermined period of time has elapsed to determine if the device is operating properly (Col. 8, Lines 59-64). While Johnson does not explicitly disclose that the signal applied is a known vehicle speed, a voltage induced in the probe is representative of the speed of a vehicle passing over the sensing area (Col. 3, Line 65 - Col 4, Line 25). A PHOSITA would have come to the conclusion that the magnitude of the voltage applied to the probe may be proportional to a voltage corresponding to a known speed. This would provide the advantageous benefit of ensuring that the system is providing accurate measurements because the speed determined by the system as a result of applied signal should not substantially deviate from the expected response of the system. Any substantial deviation, similar to passing one or more vehicles through the sensing area, as described above, would be an indication that the system needs to be recalibrated.

It would have been obvious to a PHOSITA at the time of the Applicant’s invention, to modify the system for verifying the speed of a vehicle as disclosed in Cohen in view of Johnson, to calibrate the system by injecting a signal and comparing a known vehicle speed to a determined vehicle speed, based on the teachings of Johnson, to ensure that the system is providing accurate measurements.

18. **Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen et al. (US 6,075,466) in view of Smith et al. (US 3,872,283), Kauer et al. (US 5,020,236), Hutchinson (US 2002/0000921), and Klashinsky et al. (US 5,617,086)**.

19. Regarding claim 23, Cohen discloses (a) a camera for recording an image of the vehicle to enable the vehicle to be classified according to type. The traffic monitoring system 50 includes a video camera 54 (Col. 8, Lines 19-20).

Furthermore, Cohen discloses at least two sensors separated by a distance which are triggered to emit a signal by the front and rear axles. When a vehicle drives over sensors 11 and 12, a signal is recorded by processor unit 52 (Col. 8, Lines 42-46).

Moreover, Cohen discloses triggering the sensors to each emit a signal. When a vehicle drives over sensors 11 and 12, a signal is recorded by processor unit 52 (Col. 8, Lines 42-46).

Additionally, Cohen discloses means for receiving the signals emitted by the sensors. Processor unit 52 uses the signals from sensors 11 and 12 to determine the impact times of the wheels (Col. 8, Lines 44-46).

Also, Cohen discloses means for using the signals to determine the speed of the vehicle. The processor unit determines the vehicles velocity by dividing the known distance between sensors 11 and 12 by the time difference t2-t1 (Col. 8, Lines 47-50).

Lastly, Cohen discloses (f) means for identifying a vehicle from the recorded image of the vehicle The image of the front or rear of the vehicle is then analyzed using a suitable algorithm aimed at extracting the license plate registration number (Col. 9, Lines 8-10).

Cohen does not explicitly disclose (e) means for using the signals to determine the number of axles for the vehicle, (g) means for comparing the wheel base measurement determined by the system to a validated wheel base measurement of the vehicle being sensed, and (h) means for identifying any discrepancy between the determined wheel base measurement and the validated wheel base measurement of the vehicle being sensed as potential errors in the speed of the vehicle determined in step (f), and (i) a database containing data relating to various vehicle types associated with vehicle specifications including a validated number of axles for each vehicle type, wherein the axle count determined by the system is compared to the validated axle count stored in the database and any discrepancy between them is indicative of potential errors in the speed of the vehicle determined by the system.

However, Smith discloses the means (g) in a system that passively identifies an aircraft without requiring information actively transmitted from the aircraft and in an automatic manner not requiring manual input from an operator (Col. 1, Lines 56-60). Although Smith teaches means (g) with respect to an airplane (Figure 2), Smith discloses that the identification system disclosed in Smith is operable with automobiles and other vehicles having non-tricycle wheel arrangements (Col. 3, Lines 53-59). Specifically, Smith discloses that a footprint of a vehicle is determined by generating a unique relation of signals that are generated as the vehicle travels along a path which includes sensors positioned at signal generating locations, with at least one such sensor providing a signal each time a vehicle wheel passes the sensor (Col. 2, Lines 42-50). The time relation of the signals generated is used to determine the velocity of the

vehicle and the dimensional locations of the wheels (wheelbase) (Col. 2, Lines 55-58). The dimensions determined from the measured signal velocity time relation produced by the wheels of the vehicle (determined wheel base measurement) can be compared with predetermined dimension signals (validated wheel base measurement) produced by the footprints of various known vehicle types, with a matching or best-fit comparison providing an identification of the vehicle type which produces the measured dimension signals (Col. 2, Lines 58-65).

It would have been obvious to a PHOSITA to modify the system for verifying the speed of a vehicle as disclosed in Cohen, to include (g) means for comparing the wheel base measurement determined by the system to a validated wheel base measurement of the vehicle being sensed, as taught by Smith, to passively identify a vehicle without requiring the vehicle or operator of the vehicle to actively transmit any information.

Cohen in view of Smith do not explicitly disclose (h) means for identifying a discrepancy between the determined wheel base measurement and the validated wheel base measurement of the vehicle being sensed as potential errors in the speed of the vehicle determined in step (f).

However, Kauer teaches that it is possible to determine the interaxle distance of a moving vehicle while its speed is being measured for the purposes of determining whether the interaxle distance for a vehicle is appropriate for a particular bridge (Col. 1, Lines 8-18). Kauer further discloses that indirectly determining the interaxle distance (wheelbase measurement) of a vehicle by using the time intervals as the front and rear

axle of a vehicle pass over sensors is imprecise (Col. 1, LInes 18-30). Thus, this measurement is subject to error.

In light of Kauer, a PHOSITA would have come to the conclusion that any discrepancy between the determined wheel base measurement of Cohen in view of Smith and the validated wheel base measurement of Cohen in view of Smith of the vehicle being sensed as potential errors in the speed of the vehicle determined by Cohen because indirectly determining the interaxle distance from the speed of a moving vehicle is imprecise. If the derived wheelbase from the vehicle speed is imprecise and does not match the expected wheel base, then a PHOSITA would have come to the conclusion that there must be a certain degree of error with the speed determination because the derived wheelbase should be equal to the expected wheel base (validated wheelbase). If there wasn't an error with the speed determination, then the determined wheelbase derived from the vehicle speed determination should be equal to the expected (validated) wheel base measurement because the derived wheelbase measurement is directly based on data that determines the speed of a moving vehicle.

It would have been obvious to a PHOSITA at the time of the Applicant's invention, to modify the system for verifying the speed of a vehicle as disclosed in Cohen in view of Smith, to include (h) means for identifying a discrepancy between the determined wheel base measurement and the validated wheel base measurement of the vehicle being sensed as potential errors in the speed of the vehicle determined above, based on the teachings of Kauer, because indirectly determining the wheel base from the speed of a moving car is imprecise and thus a discrepancy between a value

derived from the speed of the moving car and the expected value of the wheel base would indicate that something is wrong with the speed measurement.

Furthermore, Hutchinson discloses (e) means for using the signals to determine the number of axles for the vehicle for the purposes of studying the rate of flow and individual speed of the vehicle traffic passing along a street (Paragraph [0013]). Specifically, Hutchinson discloses that two separated parallel tubes must be installed across the lanes of traffic to measure the time interval elapsed by a vehicle passing between the two tubes (Paragraph [0013]). This configuration may be used if the objective of the traffic measurement is to obtain the vehicle count and the direction of travel (Paragraph [0019]). Hutchinson further discloses that a two-axle and three axle vehicle passing over the two tubes will cause four and six pulses to be transmitted, respectively (Paragraph [0013]).

It would have been obvious to a PHOSITA at the time of the Applicant's invention, to modify the vehicle speed verification method of Cohen, to count the signals triggered by the sensors and to associate the signals with the number of axles for the vehicle, as disclosed in Hutchinson, for the purposes of studying the rate of flow and individual speed of the vehicle traffic passing along a street.

Moreover, Klashinsky discloses (i) a database containing data relating to various vehicle types associated with vehicle specifications including a validated number of axles for each vehicle type to provide an improved traffic monitoring system (Col. 2, Lines 9-11). Specifically, Klashinsky discloses that the traffic monitoring system processes the signals from the sensor array 64 to determine the number of axles for the

vehicle (Col. 7, Lines 63-66). A vehicle record is created and compares the measured values to a table of vehicle classes to determine whether or not the vehicle is a class listed (Col. 7, Line 66 - Col. 8, Line 3). Thus, to classify the vehicle, such as a truck, the number of axles must be known beforehand. Therefore, Klashinksy discloses a database that includes a validated number of axles for each vehicle type.

It would have been obvious to a PHOSITA at the time of the Applicant's invention, to modify the system for verifying the speed of a vehicle of Cohen, to include (i) a database containing data relating to various vehicle types associated with vehicle specifications including a validated number of axles for each vehicle type, as taught by Klashinksy, to provide an improved traffic monitoring system.

Cohen in view of Hutchinson and Klashinksy do not explicitly disclose that the number of the axles determined is compared to an actual number of axles in the vehicle being sensed such that any discrepancy between them is indicative of potential errors in the speed of the vehicle determined by the method.

However, a PHOSITA would have come to the conclusion that comparing the sensed number of axles should be compared to the actual number of axles to determine if there is an error the vehicle speed measurement. Such a step is a natural extension of the teachings of Hutchinson and Klashinsky because an inaccurate axle count would not provide an accurate traffic study. If the number of axles counted does not equal the actual number of axles of the vehicle, then a PHOSITA would have come to the conclusion that a discrepancy between the number of axles would be indicative of error in the speed determination because the speed determination is based on when an axle

passes over a sensor. If an axle was not sensed by the sensors, then it follows that the speed determination of the vehicle would not be correct.

It would have been obvious to a PHOSITA at the time of the Applicant's invention, to modify the teachings of Cohen in view of Hutchinson, to compare the sensed number of axles to the actual number of axles and any discrepancy between the two is indicative of an error in the speed measurement because such a step is a natural extension of the teachings of Hutchinson since an inaccurate axle count would not provide an accurate traffic study.

20. **Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen et al. (US 6,075,466) in view of Smith et al. (US 3,872,283) and Kauer et al. (US 5,020,236) as applied to claim 17 above, and further in view of Owen et al. (US 2003/0011492)**.

21. Regarding claim 24, Cohen does not disclose that database includes an expert system whereby axle counts and/or wheelbase measurements for vehicle types are learned from measurements made by the system and then added to the database.

However, Owen discloses a database that includes an expert system whereby axle counts for vehicle types are learned from measurements made by the system and then added to the database to classify vehicles to accurately calculate vehicle velocities (Paragraph [0016]). Specifically, Owen discloses that the vehicles may be classified into groups such as passenger vehicles, two-axle trucks, three-axle vehicles, etc. (Paragraph [0018]). Owen further discloses that a digital signal processing technique

may be trained to classify events by recalling a boundary of the classification group (Paragraph [0019]).

It would have been obvious to a PHOSITA at the time of the Applicant's invention, to modify the database of Cohen in view of Klashinsky to include an expert system to learn axle counts from measurements and to add the counts to the database, as taught by Owen, in order to accurately calculate vehicle velocities..

22. **Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen et al. (US 6,075,466) in view of Harvey et al. (Vehicle Speed Measurement Using an Imaging Method), Smith et al. (US 3,872,283), and Kauer et al. (US 5,020,236)**

23. Regarding claim 25, Cohen discloses sensing a presence of the vehicle. The automatic traffic monitoring system includes a passive road sensor that accurately detects the movement of a moving vehicle (Abstract).

Cohen discloses recording an image of the vehicle to enable the vehicle to be classified. The traffic monitoring system 50 includes a video camera 54 (Col. 8, Lines 19-20). If the vehicle speed or the distance between two vehicles exceeds a threshold, then an image obtained from video camera 54 is analyzed to extract the license plate number of the vehicle (Col. 9, Lines 1-10).

However, Cohen does not explicitly disclose (b) recording an image of the vehicle to enables the vehicle to be classified *according to type*.

A PHOSITA would have come to the conclusion that the type of vehicle, such as a two axle or three axle vehicle could be determined from the image obtained from

video camera 54. This would provide the advantageous benefit of allowing speed versus vehicle type analysis to be performed, which would allow traffic patterns to be studied.

It would have been obvious to a PHOSITA to record an image of the vehicle to enable the vehicle to be classified according to type based on the teachings of Cohen to allow traffic patterns to be studied.

Cohen discloses triggering the sensors to each emit a signal. When a vehicle drives over sensors 11 and 12, a signal is recorded by processor unit 52 (Col. 8, Lines 42-46).

Cohen discloses receiving the signals emitted by the sensors. Processor unit 52 uses the signals from sensors 11 and 12 to determine the impact times of the wheels (Col. 8, Lines 44-46).

Lastly, Cohen discloses determining the speed of the vehicle. The processor unit determines the vehicles velocity by dividing the known distance between sensors 11 and 12 by the time difference t2-t1 (Col. 8, Lines 47-50).

Cohen does not explicitly disclose (f) determining a wheel base measurement for the vehicle, (g) providing a database containing data relating to various vehicle types associated with vehicle specifications including a validated wheel base measurement for each vehicle type, (h) comparing the wheel base measurement determined by the system to the validated wheel base measurement, (i) identifying a discrepancy between the determined wheel base measurement and the validated wheel base measurement of the vehicle being sensed as potential error trends and enable system calibration, and

(j)maintaining a register of speed and wheel base measurement data and discrepancies from validated wheel base measurement data.

However, Harvey step (j) for the advantageous benefit of allowing a PHOSITA to calibrate the system based on experimental data in order to improve the accuracy of the measurement. Harvey discloses that all speed calculations are done offline (Real Time Operation Section, Page 1731). The validated wheel base measurement is known (Conclusion, Page 1733). A wheel base length and speed may be determined from the images obtained (Vehicle Speed Calcuation, Page 1731). A PHOSITA would have come to the conclusion that the results of the vehicle speed calculation could be stored, i.e., maintaining a register of measurements and discrepancies.

It would have been obvious to a PHOSITA at the time of the Applicant's invention, to modify the method of calibrating a vehicle speed determination of Cohen, by maintaining a register of speed and wheel base measurement data and discrepancies from validated wheel base measurement data, based on the teachings of Harvey, to calibrate the system based on experimental data in order to improve the accuracy of the measurement.

Furthermore, Smith discloses limitations (f), (g), and (h) as a method to passively identify an aircraft without requiring information actively transmitted from the aircraft and in an automatic manner not requiring manual input from an operator (Col. 1, Lines 56-60). Although Smith teaches steps (f) and (h) with respect to an airplane, Smith discloses that the identification system disclosed in Smith is operable with automobiles and other vehicles having non-tricycle wheel arrangements (Col. 3, Lines 53-59).

Specifically, Smith discloses that a footprint of a vehicle is determined by generating a unique relation of signals that are generated as the vehicle travels along a path which includes sensors positioned at signal generating locations, with at least one such sensor providing a signal each time a vehicle wheel passes the sensor (Col. 2, Lines 42-50). The time relation of the signals generated is used to determine the velocity of the vehicle and the dimensional locations of the wheels (wheelbase) (Col. 2, Lines 55-58). The dimensions determined from the measured signal velocity time relation produced by the wheels of the vehicle (determined wheel base measurement) can be compared with predetermined dimension signals (validated wheel base measurement) produced by the footprints of various known vehicle types, with a matching or best-fit comparison providing an identification of the vehicle type which produces the measured dimension signals (Col. 2, Lines 58-65). Smith discloses a stored dimension data 43 that stores wheelbase information and is inputted into a comparator 44 that compares the stored information with the determined wheelbase for the purposes of outputting a vehicle type (Figure 2). The determined wheelbase measurement is compared with predetermined signals of various known vehicle types (Col. 2, Lines 58-65).

It would have been obvious to a PHOSITA to modify the method of verifying the speed of a vehicle as disclosed in Cohen, to (f) determine a wheel base measurement for the vehicle, (g) provide a database containing data relating to various vehicle types associated with vehicle specifications including a validated wheel base measurement for each vehicle type, and (h) compare the determined wheel base measurement to a validated wheel base measurement of the vehicle being sensed, as taught by Smith, to

passively identify a vehicle without requiring the vehicle or operator of the vehicle to actively transmit any information.

Cohen in view of Smith do not explicitly disclose (i) identifying a discrepancy between the determined wheel base measurement and the validated wheel base measurement of the vehicle being sensed as potential error trends and enable system calibration.

However, Kauer teaches that it is possible to determine the interaxle distance of a moving vehicle while its speed is being measured for the purposes of determining whether the interaxle distance for a vehicle is appropriate for a particular bridge (Col. 1, Lines 8-18). Kauer further discloses that indirectly determining the interaxle distance (wheelbase measurement) of a vehicle by using the time intervals as the front and rear axle of a vehicle pass over sensors is imprecise (Col. 1, LInes 18-30). Thus, this measurement is subject to error.

In light of Kauer, a PHOSITA would have come to the conclusion that any discrepancy between the determined wheel base measurement of Cohen in view of Smith and the validated wheel base measurement of Cohen in view of Smith of the vehicle being sensed as potential errors in the speed of the vehicle determined by Cohen because indirectly determining the interaxle distance from the speed of a moving vehicle is imprecise. If the derived wheelbase from the vehicle speed is imprecise and does not match the expected wheel base, then a PHOSITA would have come to the conclusion that there must be a certain degree of error with the speed determination because the derived wheelbase should be equal to the expected wheel base (validated

wheelbase). If there wasn't an error with the speed determination, then the determined wheelbase derived from the vehicle speed determination should be equal to the expected (validated) wheel base measurement because the derived wheelbase measurement is directly based on data that determines the speed of a moving vehicle. A PHOSITA would have also come to the conclusion that comparing the determined wheel base measurement to the validated wheel base measurement would demonstrate how accurate the measurement is because the determined wheel base measurement of a precise measuring system should not substantially deviate from the validated wheel base measurement. Any substantial deviation would indicate that the system is not accurate and needs to be recalibrated.

It would have been obvious to a PHOSITA at the time of the Applicant's invention, to modify the system for verifying the speed of a vehicle as disclosed in Cohen in view of Smith, to include means for identifying a discrepancy between the determined wheel base measurement and the validated wheel base measurement of the vehicle being sensed as potential errors in the speed of the vehicle determined above and enable system calibration, based on the teachings of Kauer, because indirectly determining the wheel base from the speed of a moving car is imprecise and thus a discrepancy between a value derived from the speed of the moving car and the expected value of the wheel base would indicate that something is wrong with the speed measurement and should be corrected.

Response to Arguments

24. Applicant's arguments with respect to independent claims 1, 6, 11, 17, 23, and 25 have been considered but are moot in view of the new ground(s) of rejection.

25. The positive action limitation of “identifying a discrepancy between the determined wheel base measurement and the validated wheel base measurement of the vehicle being sensed as potential errors in the speed of the vehicle determined by step (e)" of claim 1 and similar variations in the other independent claims has changed the scope of the claim and is a new consideration that required a new search.

Conclusion

26. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIMOTHY H. HWANG whose telephone number is (571)270-3422. The examiner can normally be reached on 5/4/9 Monday- Friday 7:30 am - 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jonathan C. Teixeira Moffat/
Primary Examiner AU 2857
12/7/2011

/T. H. H./
Examiner, Art Unit 2857